Table S1. Notation and Abbreviation Index Table.

Notation	Description
S_I	ECG signal from Lead I
S_{V2}	ECG signal from Lead V2
t_i	The time lag t introduced to S_{V2} at i[th] step
$\tilde{S}_{V2_i}$	The time shifted ECG signal from Lead V2 by the time lag t_i
r_i	The correlation between Lead I and time-shifted Lead V2 signals by the time lag t_i
t_{max}	The time lag with maximal correlation between two signals
τ	Optimal time alignment determined by the proposed algorithm

Abbreviation	Description
BW	Baseline wandering
dSQI	Dynamic signal quality index
DTW	Dynamic time warping
EM	Electrode motion artifact
INCART	The St. Petersburg Institute of Cardiological Technics
MA	Muscle artifact
SQI	Signal quality index